AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-17. (cancelled)

18. (currently amended) An irradiation unit comprising a light-emitting unit, a housing, and a light-conducting unit having an entrance ~~orifice~~ aperture,

the light-emitting unit comprising a plurality of light-emitting elements each of which has a light cone, an aperture and an optical axis, and emits a light beam which is directed onto and directly illuminates the entrance ~~orifice~~ aperture,

wherein each of the light-emitting ~~element~~ elements is mounted a distance away from the entrance ~~orifice~~ aperture with an angle of inclination relative to the optical axis,

wherein the light-emitting elements are arranged on at least two planes parallel to the entrance ~~orifice~~ aperture, a plane furthest removed from the entrance ~~orifice~~ aperture being a circular surface and all other planes being an annular surface having an annular opening, and the light beams emitted by light-emitting elements on a plane further from the ~~en~~ entrance ~~orifice~~ aperture illuminate the entrance ~~orifice~~ aperture through the annular opening of the annular surfaces closer to the entrance ~~orifice~~ aperture,

wherein the light-emitting elements are thermally connected to the housing,

and wherein the aperture, the distance and the angle of inclination are selected such that the light beam illuminates an area that corresponds substantially to the surface of the entrance ~~orifice~~ aperture.

19. (previously presented)The irradiation unit as claimed in claim 18, in which the light-emitting elements are arranged on three planes.

20. (currently amended) An irradiation unit as claimed in claim 18, where the outer diameter of the plane situated closest to the entrance ~~orifice~~ aperture, measured at the tip of the light-emitting elements, corresponds substantially to the diameter of the entrance ~~orifice~~ aperture.

21. (currently amended) An irradiation unit as claimed in claim 18, wherein the diameter of the opening ring formed by annularly arranged light-emitting elements is greater than the diameter of the circular surface of the plane situated furthest removed from the entrance ~~orifice~~ aperture.

22. (previously presented)An irradiation unit as claimed in claim 18, wherein the distance between the individual planes corresponds substantially to the length of a light-emitting element.

23. (previously presented)An irradiation unit as claimed in claim 18, wherein the light-emitting element on the at least two planes have different angles of inclination.

24. (currently amended) An irradiation unit as claimed in claim 18, wherein the angle of inclination of the light-emitting elements on the plane situated closest to the entrance ~~orifice~~ aperture is greater than the angle of inclination of the light elements of all other planes situated further removed from the entrance ~~orifice~~ aperture.

25. (previously presented)An irradiation unit as claimed in claim 18, wherein the annularly arranged light-emitting elements are tilted toward the center of the ring by an angle in the range from 10° to 30°.

26. (cancelled).

27. (currently amended) An irradiation unit ~~as claimed in claim 18~~, comprising a light-emitting unit, a housing, and a light-conducting unit having an entrance aperture,

the light-emitting unit comprising a plurality of light-emitting elements each of which has a light cone, an aperture and an optical axis, and emits a light beam which is directed onto and directly illuminates the entrance aperture,

wherein the light-emitting element is mounted a distance away from the entrance aperture with an angle of inclination relative to the optical axis,

wherein the light-emitting elements are thermally connected to the housing,

wherein the light-emitting elements are arranged with different angles of inclination in a substantially planar holder,

and wherein the aperture, the distance and the angle of inclination are selected such that the light beam illuminates an area that corresponds substantially to the surface of the entrance aperture.

28. (previously presented) An irradiation unit as claimed in claim 18, wherein the light-emitting elements each has an anode and a cathode, wherein the holder is a circuit board having a top side and a rear side and both sides being coated, and wherein the anode is contacted to the top side, and the cathode is contacted to the rear side.

29. (previously presented) An irradiation unit as claimed in claim 18, wherein the light-conducting unit is a rigid optical fiber rod or a flexible optical conductor.

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30. (previously presented) An irradiation unit as claimed in claim 18, further comprising a prismatic disk located between the light-emitting unit and the light-conducting unit.

31. (currently amended) An irradiation unit as claimed in claim 30, wherein the prismatic disk has the shape of a flat conical frustum whose smaller diameter corresponds substantially to the diameter of the entrance ~~orifice~~ aperture.

32. (previously presented) An irradiation unit as claimed in claim 30, wherein the smaller side of the prismatic disk faces the light-emitting unit.

33. (currently amended) An irradiation unit as claimed in claim 18, wherein the diameter of the entrance ~~orifice~~ aperture is in the range from 8 to 14 mm, and 8 to 15 light-emitting elements are located on a first plane closest to the entrance ~~orifice~~ aperture.

34. (previously presented)An irradiation unit as claimed in claim 33, wherein 5 to 12 light-emitting elements are located on a second plane next to the first plane.

35. (previously presented)An irradiation unit as claimed in claim 34, wherein 1 to 7 light-emitting elements are located on a third plane next to the second plane.

36. (previously presented)An apparatus for hardening dental filling materials, comprising an irradiation unit of claim 18.

37. (previously presented)A method for hardening dental filling materials, comprising irradiating the dental filling materials using the irradiation unit of claim 18.

38. (previously presented)The method of claim 37, wherein the dental filling material is hardened *in situ*.

39. (new) An irradiation unit, comprising a light-emitting unit, and a light-conducting unit having an entrance aperture,

the light-emitting unit comprising a plurality of light-emitting elements each of which has a light cone, an aperture and an optical axis, and emits a light beam which is directed onto and directly illuminates the entrance aperture,

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wherein each of the light-emitting elements is mounted a distance away from the entrance aperture with an angle of inclination relative to the optical axis,

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wherein the light-emitting elements are arranged on at least two planes parallel to the entrance aperture, a plane furthest removed from the entrance aperture being a circular surface and all other planes being an annular surface having an annular opening, and the light beams emitted by light-emitting elements on a plane further from the entrance aperture illuminate the entrance aperture through the annular opening of the annular surfaces closer to the entrance aperture, wherein the at least two planes are separated by a distance that corresponds essentially to the length of the light-emitting elements,

and wherein the aperture, the distance and the angle of inclination are selected such that the light beam illuminates an area that corresponds substantially to the surface of the entrance aperture.

40. (new) An irradiation unit, comprising a light-emitting unit, and a light-conducting unit having an entrance aperture,

the light-emitting unit comprising a plurality of light-emitting elements each of which has a light cone, an aperture and an optical axis, and emits a light beam which is directed onto and directly illuminates the entrance aperture,

wherein each of the light-emitting elements is mounted a distance away from the entrance aperture with an angle of inclination relative to the optical axis, wherein the angle of inclination of the light-emitting elements on the plane situated closest to the entrance aperture is greater than the angle of inclination of the light elements of all other planes situated further removed from the entrance aperture,

and wherein the aperture, the distance and the angle of inclination are selected such that the light beam illuminates an area that corresponds substantially to the surface of the entrance aperture.